

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application. An identifier indicating the status of each claim is provided.

Listing of Claims

1. (Currently Amended) A video signal processing device for ~~processing~~
~~keeping maintaining~~ signal levels of one or more red signal signals, one or more green signal
signals and one or more blue signal signals per pixel of a video signal under ~~the a~~ predetermined
reference level, comprising:

luminance signal forming means for forming a luminance signal of said pixel
based on said red signal, green signal and blue signal per said pixel of said video signal;

detection means for detecting saturation ~~per~~ of said pixel of said video signal;

compression processing means for compression processing said red signal, green
signal and blue signal of the corresponding pixel without changing hue and saturation of said
pixel but changing brightness based on said luminance signal formed by said luminance signal
forming means and the corresponding detection result obtained by said detection means; and

control means for controlling the signal levels of said red signal, green signal and
blue signal compression processed by said compression processing means ~~as required~~ without
changing said hue and said brightness of said pixel but changing said saturation;

first generating means for generating a first brightness transfer gain signal;

second generating means for generating a second brightness transfer gain signal;

and

third generating means for generating a third brightness transfer gain signal as a
function of the first brightness transfer gain signal and the second brightness transfer gain signal,

whereby said device is operable to compression process selected pixels by performing, for each such selected pixel, two luminance knee processing operations followed by a saturation knee processing operation,

wherein the two luminance knee processing operations are performed as a function of the third brightness transfer gain signal.

2. (Currently Amended) The [[A]] video signal processing device according to Claim 1, wherein~~[[:]]~~said compression processing means~~[[:]]~~ increases the compression ratio of said red signal, green signal and blue signal as the saturation of said pixel increases.

3. (Currently Amended) The [[A]] video signal processing device according to Claim 1, ~~comprising: wherein~~ said compression processing means~~[[:]]~~ further comprises:

correction means for selecting the compression ratio corresponding to said luminance signal formed by said luminance signal forming means from the predetermined amplitude transmission characteristic changing corresponding to the signal level of said luminance signal and for correcting said selected compression ratio based on the corresponding detection result obtained by said detection means; and

compression means for compression processing said red signal, green signal and blue signal by multiplying said red signal, green signal and blue signal of the corresponding pixel by said compression ratio corrected by said correction means respectively.

4. (Currently Amended) The [[A]] video signal processing device according to Claim 3, wherein[[:]]said amplitude transmission characteristic is formed of the knee effect showing gains for compressing said luminance signal.

5. (Currently Amended) The [[A]] video signal processing device according to Claim 3, wherein[[:]] said amplitude transmission characteristic is the cumulative distribution of the occurrence frequency of said signal level of said luminance signal.

6. (Currently Amended) A video signal processing method for processing keeping the~~maintaining~~ signal levels of one or more red signal signals, one or more green signal signals and one or more blue signal signals per pixel of a video signal under the a predetermined reference level, comprising:

~~the first step for forming a luminance signal of said pixel based on said red signal, green signal and blue signal per said pixel of said video signal; and for~~

~~detecting saturation of~~ per ~~said pixel of said video signal;~~

~~the second step for compression processing said red signal, green signal and blue signal of the corresponding pixel without changing hue and saturation of said pixel but changing the brightness based on said luminance signal obtained at the first forming step and the corresponding detection result; and~~

~~the third step for controlling said signal level of said red signal, green signal and blue signal processed at the compression processing second step as required without changing hue and luminance of said pixel but changing said saturation;~~

generating a first brightness transfer gain signal;

generating a second brightness transfer gain signal; and
generating a third brightness transfer gain signal as a function of the first
brightness transfer gain signal and the second brightness transfer gain signal,
whereby said method is operable to compression process selected pixels by
performing, for each such selected pixel, two luminance knee processing operations, as a
function of the third brightness transfer gain signal, followed by a saturation knee processing
operation.

7. (Currently Amended) The [[A]] video signal processing method according
to Claim 6, wherein~~[[:]]~~ in said compression processing second-step~~[[:]]~~ the compression ratio of
said red signal, green signal and blue signal increases as the saturation of said pixel increases.

8. (Currently Amended) The [[A]] video signal processing method according
to Claim 6, wherein~~[[:]]~~ in said compression processing second-step~~[[:]]~~ the compression ratio is
selected from ~~the~~ a prescribed amplitude transmission characteristic changing corresponding to
the signal level of said luminance signal corresponding to said luminance signal formed at said
forming first-step, said selected compression ratio is corrected based on the corresponding
detection result obtained at the forming first-step, and said red signal, green signal and blue
signal are compression processed by multiplying said red signal, green signal and blue signal of
the corresponding pixel by said corrected compression ratio.

9. (Currently Amended) The [[A]] video signal processing method according to Claim 8, wherein~~[[:]]~~ said amplitude transmission characteristic is formed of knee effect showing gains for compression processing said luminance signal.

10. (Currently Amended) The [[A]] video signal processing method according to Claim 8, wherein~~[[:]]~~ said amplitude transmission characteristic is formed of the cumulative distribution of the occurrence frequency of said signal level of said luminance signal.